Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	RM-8658
Section 68.4 of the Commission's Rules	)	
Hearing Aid Compatible Telephones	)	

Reply Comments of Self Help for Hard of Hearing People (SHHH) To Request to Reopen the Petition for Rule Making

Introduction

Self Help for Hard of Hearing People (SHHH) submits these reply comments in response to the Comments of the Cellular Telecommunications & Internet Association (CTIA) and Verizon Wireless (Verizon) submitted in response to the request of the Wireless Access Coalition (WAC) that the Federal Communications Commission (FCC) reopen the Petition for Rule Making in the Matter of Section 68.4 (a) of the FCC's Rules, Hearing Aid Compatible Telephones. SHHH has previously filed Comments in this proceeding.

I. The Continuing Exemption of Digital Wireless Telephones Has An Adverse Effect on Individuals With Hearing Loss

In their comments, CTIA says, "it is premature for the Commission to commence a rulemaking proceeding at this time." [CTIA Comments at 1.] It is well known and amply noted in the comments by both CTIA and WAC

that the summit process designed to address electromagnetic compatibility between digital wireless phones and hearing aids commenced over five years ago. To date, the issue of incompatibility is still outstanding. The best case that CTIA can make for the accomplishments of the summit through December 2000 is to say that the ANSI C63.19 Testing Standard is still in the process of development and has not yet been finalized. Further, CTIA acknowledges that additional time will be required for hearing aid manufacturers and digital device makers to understand and employ the measurements in their testing standards. [Comments at 7.]

In spite of the work of the summit of the past five years, consumers are not able to find wireless telephones that work with their hearing aids, especially telecoil users. While CTIA states that some hearing aids on the market are compatible with some digital phones, they neglect to mention that these hearing aids were in existence before the summit process. In addition, the "interim solutions" which CTIA notes are offered by Nokia and Motorola [Comments at 8] require the consumer to purchase loopset accessories for their telephones because the telephones alone are not compatible with their hearing aids. Clearly, there is work to be done before digital wireless telephones are compatible with hearing aids. It is unacceptable to require consumers who utilize telecommunications

equipment which operates on bandwidths leased by the government to private industry for the benefit of all, to be forced to routinely pay extra to receive the benefit of that equipment. An "interim solution" is no long-term solution at all. Under this proposal for purchasing supplemental equipment in order to make digital telephones work, consumers have to pay more money in an attempt to make the digital telephones do what they are supposed to do in the first place—provide communication access. While we agree with CTIA [Comments at 3] that both implementation of and education on how to apply the ANSI C63.19 standard for the benefit of consumers is important, we know that the burden is on the industry to find a technological solution to make digital wireless phones accessible.

In the Verizon comments, the industry representatives say that the exemption should not be removed "until such time as technology evolves to provide a feasible internal solution." [Verizon Comments at 8.] This approach ignores the fact that the without regulatory oversight by the FCC, the industry has no motivation to seek a technological solution.

Without exception, access to telecommunications for people with hearing loss has come about through legislation. Hearing aid compatibility and volume control in voice phones, decoding capability in TVs, and telecommunications relay services are just a few examples where legislation

has enabled people with hearing loss to use telecommunications. Without this legislation these changes would not have occurred. But for the Hearing Aid Compatibility Act of 1988 (HAC Act) (47 U.S.C. §610), people with hearing loss would not be able to use regular wireline phones. Manufacturers would not, of their own volition, incorporate Part 68 components into their telephones. All came about as a consequence of federal mandates. Indeed, FCC Commissioner Harold Furchtgott-Roth, despite his general support of deregulation, conceded during the discussions on the development of regulations for Section 255, that "This particular area of regulation may well be a rare instance where the involvement of the federal government introduces efficiencies unlikely to develop in the market." If wireless manufacturers are exempt from making their handsets hearing aid compatible under the HAC Act, people who use hearing aids will never achieve full and equal access to PCS devices.

Hearing aid wearers were provided access to the telephone system because Congress recognized the vital nature of the phone system and the importance of everyone, including people with hearing loss, being able to access it. The access did not actually happen until almost 50 years after passage of the Communications Act of 1934. Now people with hearing loss are destined to play catch up again with the proliferation of personal

communication devices (PCS) that are not currently accessible to them. Consumers are not prepared to wait 50 years this time around. Technology changes far more rapidly today and people with hearing loss are already disadvantaged by not having access to PCS.

A. Congress Directed the FCC to Review Exemptions to the HAC Act

Virtually all telephones were required to be hearing aid compatible under the HAC Act, including new telephones and telephones associated with a new technology or service. Historically, telephones used with public mobile services and private radio services were exempt. However, the time has come for the FCC to revoke the exemption for digital wireless telephones. Hearing aid users are being denied access to an increasingly vital technology. PCS devices are no longer a novelty or a high-end product. Nor are they primarily used for emergency situations. They have become commonplace and consumers are relying on them more and more. Increasingly, alternative options, such as analog service, are harder to find and more expensive than digital service.

SHHH believes that the collaborative approach between the wireless and hearing aid industries, hearing health professionals and consumers that has been going on for the past five years, though valuable in many ways, has not produced the desired results, and consumers with hearing loss are being

denied access to telecommunications. Five years is too long for the summit group to work without the required periodic FCC oversight and review specified in the enabling legislation.

II. Compliance with Section 68.4 (a)(1) Is Technologically Feasible For Digital Telephones.

Compatibilty of digital wireless telephones with hearing aids is technologically feasible. Research at the University of Oklahoma has identified at least one potential solution for interference with CDMA digital wireless telephones (CDMA is a technology used by Verizon). The University of Oklahoma study, *Investigation of the Interaction Between CDMA Wireless Phones and Hearing Aids*[1] [Excerpts from Executive Summary at Appendix A] found that switching the telephones to full data transmission (or puncture) rates above a specific phone output power level was effective in improving speech intelligibility and reducing annoyance for all hearing aids tested. The amount of improvement was substantial for hearing aids with poor immunity. For hearing aids with medium or high immunity, the degree of improvement depended upon specific characteristics of the hearing aid itself, such as the type of EMC treatment applied during design and manufacture. This suggests that a technological solution to the

[1] See, University of Oklahoma Wireless EMC Center, *Investigation of The Interaction Between CDMA Wireless Phones and Hearing Aids*, (visited December 27, 2000) http://www.ou.edu/engineering/emc/projects/CDG.html.

problem of interference between wireless telephones and hearing aids is possible. The ultimate solution awaits further research and development. One solution to the interference would be to build adequate amplification, equalization and compression features into the telephone itself, so that a hearing aid would not be necessary. Developers could also explore non-inductive ways (e.g. infrared or fm) to couple the audio the audio signal to the hearing aid.

III. Telephone Manufacturers are Responsible for Making Hearing Aid Compatible Telephones

It is not the place of the consumer to identify solutions or provide a list of possible solutions. This is the responsibility of the industry. Thus, Verizon's comment that "the design of the hearing aid – is beyond the control of the wireless industry and manufacturers of wireless devices," [Verizon Comments at 6] is completely irrelevant to this proceeding. The clear intent of Congress in passing the HAC Act was that all telephones, including new technologies, be accessible to people with hearing loss. While the Hearing Aid Compatibility Act of 1988 provided that the FCC's initial rules grant an exemption for wireless telephones, it was clear that there was no intent on the part of Congress to establish a permanent exemption, as the law mandates that the agency must review the basis for that exemption on an ongoing basis. The burden of making the telephones

compatible is on the manufacturers of the telephones, not on those who make or use the hearing aid.

IV. Conclusion

For all these reasons we reaffirm our support of the opening up of the petition to revoke the exemption for wireless telephones from the HAC Act.

Respectfully submitted,

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Appendix A

Excerpts from an Executive Summary posted by the University of Oklahoma Wireless EMC Center, at http://www.ou.edu/engineering/emc/projects/CDG.html (Visited December 27, 2001).

University of Oklahoma

School of Industrial Engineering-Wireless EMC Center

INVESTIGATION OF THE INTERACTION BETWEEN CDMA WIRELESS PHONES AND HEARING AIDS

Executive Summary

Background

Interference between digital wireless phones and hearing aids occurs when the RF bursts from the phone transmission are demodulated by the hearing aid amplifier. The amplified interference signal is heard as noise by the hearing aid wearer. CDMA phones characteristically produce a "static" noise due to the random pulse structure of their transmission signal. This noise is not only annoying, but can seriously affect the intelligibility of the transmitted speech.

Depending upon speech activity, CDMA phones transmit data at a variety of rates. These transmission (or puncture) rates are categorized as full, half, quarter, eighth or variable. Typically, CDMA phones transmit at full rate when speech (or data) activity is continuous, and drop to eighth rate during idle speech or data periods.

The CDMA Development Group (CDG) commissioned this study to investigate the effects of various phone puncture rates and transmission power levels with the objective of determining the power level at which interference becomes unacceptable. This threshold could be used to trigger the phone to switch to a full puncture rate, thereby reducing the interference and increasing the phones usability by hearing aid wearers. Data from the study provide evidence that this switch would be effective in improving speech intelligibility and reducing annoyance for all aids

tested. Furthermore, the amount of improvement at a given power level can be quantified.

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Results and Conclusions

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Minimizing the Interference

This study was undertaken to evaluate the effectiveness of switching to full puncture rate above a specific phone output power level in order to reduce the audible interference in hearing aids. Data from the study provide evidence that this switch would be effective in improving speech intelligibility and reducing annoyance for all aids tested. Furthermore, the amount of improvement at a given power level can be quantified. This improvement is substantial for hearing aids with poor immunity.

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The hearing aids tested in this study were chosen to represent the entire range of immunity levels, from very sensitive to highly immune. While the distribution of the immunity levels of hearing aids in actual use is unknown, it is probably not evenly distributed among the population. Hence, although the range of immunity levels was covered by the hearing aids tested in this study, the distribution of those levels may not accurately represent that of the hearing aids in actual use. Therefore, caution should be taken in applying the results of this study to the general population.